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EXAMINER

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,888	Applicant(s) YAMADA ET AL.	
	Examiner Arnel C. Lavarias	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,13 and 14 is/are allowed.
- 6) ☒ Claim(s) 3,4,6-12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments to the specification and abstract of the disclosure in the submission dated 10/6/05 are acknowledged and accepted. In view of these amendments, the objections to the specification in Section 4 of the Office Action dated 6/6/05 are respectfully withdrawn.
2. The amendments to Claims 2-3, 5-6, 13-14 in the submission dated 10/6/05 are acknowledged and accepted. In view of these amendments, the objections to the claims in Section 6 of the Office Action dated 6/6/05 are respectfully withdrawn.
3. The cancellation of Claim 1 in the submission dated 10/6/05 is acknowledged and accepted. In view of this amendment, the rejection of Claims 1, 3-5 in Section 8 of the Office Action dated 6/6/05 are respectfully withdrawn.
4. The addition of Claim 15 in the submission dated 10/6/05 is acknowledged and accepted.

Election/Restrictions

5. Newly amended Claim 5 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species of the claimed invention:

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Species 1- drawn to the invention as shown in Figure 13, wherein the half wavelength plate is arranged between the diffraction grating and the light source. Claims 2-4, 6-15 appear to be readable on Species 1.

Species 2- drawn to the invention as shown in Figures 8-9, wherein the half wavelength plate is arranged between the hologram and the diffraction grating. Claims 3-5, 15 appear to be readable on Species 2.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Since applicant has received an action on the merits for the originally presented invention (i.e. Species 1), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, Claim 5 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

6. The Applicants' arguments filed 10/6/05 have been fully considered but they are not persuasive.
7. The Applicants argue that, with respect to newly amended Claim 6, as well as Claims 7-12, which depend on Claim 6, Kajiyama et al. fails to teach or reasonably suggest the optical axis conversion mirror having a half wavelength plate mounted on a mirror surface of the optical axis conversion mirror. The Examiner respectfully disagrees. The optical axis conversion mirror disclosed by Kajiyama et al. (See 3 in Figure 1 of Kajiyama et al.) includes 7 surfaces (6 provided by the outer surfaces of the cube, and the single internal diagonal surface within the cube), one of which has the half wavelength plate mounted onto its surface (See 4 in Figure 1). It is noted, however, that Kajiyama et al. does not explicitly disclose the half wavelength plate being directly mounted onto the reflecting surface of the optical axis conversion mirror.
8. Claims 3-4, 6-12, 15 are now rejected as follows.

Claim Objections

9. Claim 15 is objected to because of the following informalities:

Claim 15, line 10- insert period at end of claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohyama (U.S. Patent No. 6366548), of record.

Ohyama discloses an optical pick-up apparatus (See for example Figures 3-5, 8-9) comprising a light source for emitting laser light in two wavebands (See 5, 8, 9 in Figures 3-4); a light-receiving element for receiving laser light which is emitted from the light source and is reflected by an optical recording medium (See for example 3a, 3b, 4a, 4b in Figures 3-4); and a diffraction grating (See for example 13 or 14 in Figures 3, 8, 9; col. 11, line 9-col. 12, line 39) having polarization characteristics between the light source and the optical recording medium by which the laser light emitted from the light source and being incident is transmitted without diffraction when a polarization direction for the laser light is equal to a predetermined first polarization direction and also by which the laser light emitted from the light source and being incident is diffracted when a polarization direction for the laser light is equal to a predetermined second polarization direction, the optical pick-up apparatus performing (See Abstract; col. 2, line 59-col. 6, line 67) at least one of processes for reading information of the optical recording medium and recording information on the optical recording medium by irradiating the optical recording medium by the laser light emitted from the light source on the optical recording

medium, and the polarization directions of the laser lights in the two wavebands being orthogonal with each other on a position on which the laser light is incident on the diffraction grating (See Figure 8, where the incident light at 780 nm has TE polarization and incident light at 635 nm has TM polarization). Ohyama further discloses an optical assembly (See 12, 13, 14 in Figures 3-5, 8-9), including an optical element, disposed between the light source and the optical recording medium, provided with a hologram (See for example 13 or 14 in Figures 3, 8; col. 14, lines 61-65) for diffracting incident light on a first surface portion and spectrally splitting the incident light to a plurality of lights and provided with the diffraction grating (See for example 13 or 14 in Figures 3, 8) on a second surface portion, a light source unit (See for example 2, 5, 8, 9, 3a, 3b, 4a, 4b in Figures 3-4) having the light source and the light-receiving element; the hologram having polarizing characteristics by which diffraction efficiency for laser light in the predetermined first polarization direction is greater than diffraction efficiency for laser light in the predetermined second polarization direction (See for example element 13 in Figures 8A, 8B, wherein the element does not diffract light having TE polarization (i.e. 0% diffraction efficiency) and diffracts light having TM polarization (i.e. 100% diffraction efficiency) into the first order); and the hologram of the first optical element is a polarizing hologram having polarization characteristics by which the laser light emitted from the light source and being incident on the hologram is not diffracted and is transmitted (See 13 or 14 in Figures 3, 8; col. 14, lines 61-65).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al. (WO00/36597), of record.

Kajiyama et al. discloses a semiconductor laser apparatus (See for example Figures 1, 6-7, 10) comprising a light source for emitting laser light in a plurality of wavebands (See for example 1A, 1B in Figures 1, 6-7); an optical axis conversion mirror for changing a traveling direction of laser light emitted from the light source and provided with a half wavelength plate for changing a polarization direction for laser light in one of wavebands (See 3, 4 in Figures 1, 6-7, 10; Page 5, line 29-Page 6, line 21); and a light-receiving element for receiving reflected light of laser light which is emitted from the light source and is transmitted in one direction (See for example 9 in Figures 1, 6-7, 10). Kajiyama et al. does not explicitly disclose the light source being installed such that polarization directions of the plurality of laser lights emitted therefrom are parallel to each other. However, it is noted that in the operation of the device of Kajiyama et al., the emitted laser lights from sources 1A and 1B (See for example Figures 1, 6-7) must pass through a polarization beam splitter (See 3 in Figures 1, 6-7). As is known in the art, such polarization beam splitters must pass one particular polarization and reflect an orthogonal polarization. Thus, if the emitted laser lights from sources 1A and 1B are to arrive at the

optical disk (See 11, 110 in Figures 1, 6-7), these emitted laser lights must both have the same polarization to pass through polarization beam splitter 3. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light source be installed such that polarization directions of the plurality of laser lights emitted therefrom are parallel to each other, for the purpose of maximizing the amount of light incident onto the optical disk.

14. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al.

Kajiyama et al. discloses a semiconductor laser apparatus (See for example Figures 1, 6-7, 10) comprising a light source for emitting laser light in a plurality of wavebands (See for example 1A, 1B in Figures 1, 6-7); a beam splitter for changing a traveling direction of laser light emitted from the light source (See for example 6 in Figures 1, 2, 5); a half wavelength plate for changing a polarization direction for laser light in one of wavebands (See 4 in Figures 1, 6-7, 10; Page 5, line 29-Page 6, line 21), wherein the half wavelength plate is disposed between the light source and the beam splitter; and a light-receiving element for receiving reflected light of laser light which is emitted from the light source and is transmitted in one direction (See for example 9 in Figures 1, 6-7, 10). Kajiyama et al. does not explicitly disclose the light source being installed such that polarization directions of the plurality of laser lights emitted therefrom are parallel to each other. However, it is noted that in the operation of the device of Kajiyama et al., the emitted laser lights from sources 1A and 1B (See for example Figures 1, 6-7) must pass through a polarization beam splitter (See 3 in Figures 1, 6-7). As is known in the art, such

polarization beam splitters must pass one particular polarization and reflect an orthogonal polarization. Thus, if the emitted laser lights from sources 1A and 1B are to arrive at the optical disk (See 11, 110 in Figures 1, 6-7), these emitted laser lights must both have the same polarization to pass through polarization beam splitter 3. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light source be installed such that polarization directions of the plurality of laser lights emitted therefrom are parallel to each other, for the purpose of maximizing the amount of light incident onto the optical disk.

15. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al.

Kajiyama et al. discloses the invention as set forth above in Claim 6, except for the half wavelength plate being a birefringent crystal thin plate or an anisotropic resin film. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the half wavelength plate be a birefringent crystal thin plate or an anisotropic resin film, since it has been held to be within the ordinary skill of worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to have the half wavelength plate half wavelength plate be a birefringent crystal thin plate or an anisotropic resin film, to take advantage of the low cost and wide availability for such birefringent materials. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

16. Claims 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al. in view of Nakanishi et al. (U.S. Patent No. 5748658), of record.

Kajiyama et al. discloses the invention as set forth above in Claim 6, except for the light source and light receiving element being mounted either on a resin base provided with a lead or a silicon substrate. However, Nakanishi et al. teaches conventional optical pick up head (See for example Figures 4-10), wherein the light source (See for example 40 in Figures 6-7) and the light receiving element (See for example 51 in Figure 7) may both be located on the same base or substrate (See for example 41, 42 in Figures 6-7), such as a silicon or resin base or substrate (See col. 4, lines 50-62; col. 5, line 45-col. 6, line 44). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light source and light receiving element be mounted either on a resin base provided with a lead or a silicon substrate, as taught by Nakanishi et al., in the laser apparatus of Kajiyama et al., for the purpose of reducing the size, weight, and cost of the laser apparatus, while retaining excellent rigidity and reliability.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al. in view of Nakanishi et al.

Kajiyama et al. in view of Nakanishi et al. discloses the invention as set forth above in Claim 6, except for the light source and the light receiving element being mounted on a metal pedestal, a lead kept under a condition electrically insulated from the pedestal being attached to the pedestal, and the lead being arranged so as to extend in a direction parallel to a direction of an optical axis converted by the optical axis conversion mirror. However, Nakanishi et al. further teaches that the light source and the light receiving element in the laser apparatus (See for example 62, 66 in Figure 14) may be mounted on

a metal pedestal (See 45 in Figure 14), a lead (See for example 43b in Figure 14) kept under a condition electrically insulated from the pedestal being attached to the pedestal (It is noted that lead 43b is attached to the pedestal/lead 45 via bonding wire to element 65 and 64 in Figure 14), and the lead being arranged so as to extend in a direction parallel to a direction of an optical axis converted by the optical axis conversion mirror (Lead 43b is parallel to the light emitted from source 62 prior to arriving at turning mirror in element 64. It is additionally well known in the art that the leads may include a 90 degree bend, or any other degree of bending, such that the lead 43b may also be parallel to the light emitted from the source 62 after striking the turning mirror in element 64). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light source and the light receiving element be mounted on a metal pedestal, a lead kept under a condition electrically insulated from the pedestal be attached to the pedestal, and the lead be arranged so as to extend in a direction parallel to a direction of an optical axis converted by the optical axis conversion mirror, as additionally taught by Nakanishi et al., in the laser apparatus of Kajiyama et al. in view of Nakanishi et al., for the purpose of reducing the package size of the laser apparatus.

18. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al. in view of Nakanishi et al.

Kajiyama et al. in view of Nakanishi et al. discloses the invention as set forth above in Claim 11, except for the optical axis conversion mirror being formed by processing the silicon substrate. However, Nakanishi et al. further teaches (See Figure 11) that fold or

turning mirrors (See 63 in Figure 11B) may be integrated as part of the base or substrate of the optical system, wherein the fold or turning mirror is formed by processing the silicon base or substrate (See col. 7, line 59-col. 8, line 35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optical axis conversion mirror be formed by processing the silicon substrate, as additionally taught by Nakanishi et al., in the laser apparatus of Kajiyama et al. in view of Nakanishi et al., for the purpose of reducing the size of the laser apparatus, while simplifying optical alignment since neither the mirror nor the emission source are moved during or after formation of the mirror on the substrate.

Allowable Subject Matter

19. Claims 2, 13-14 are allowed.
20. The following is a statement of reasons for the indication of allowable subject matter:

Claims 2, 13-14 are allowable over the cited art of record for at least the reasons as previously set forth in Section 16 of the Office Action dated 6/6/05.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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12/5/05